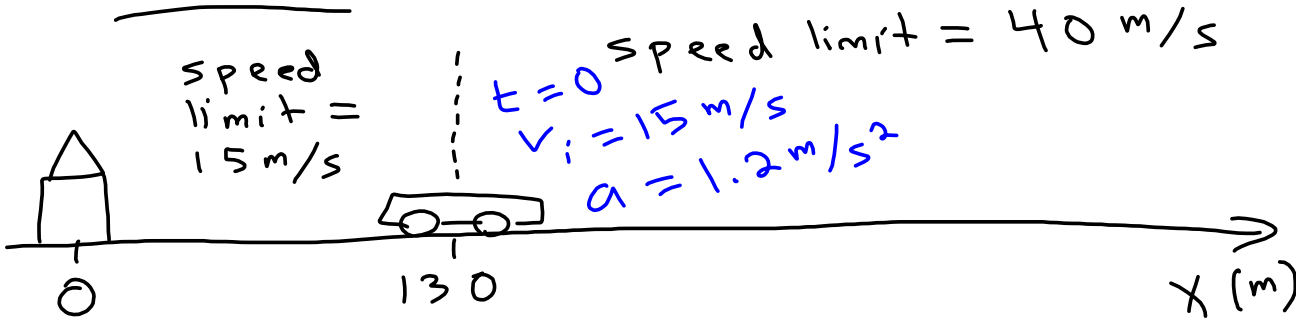
Example



What is your x-coordinate when t = 5s ?

$$v_f = v_i + at$$

$$x_f = x_i + v_i t + \frac{1}{2} a t^2$$

$$x_f = 130\text{m} + \left(15\frac{\text{m}}{\text{s}}\right)(5\text{s}) + \frac{1}{2}\left(1.2\frac{\text{m}}{\text{s}^2}\right)(5\text{s})^2$$

$$\boxed{x_f = 220\text{ m}}$$

What is v after 5s? $\boxed{21\text{ m/s}}$

How much time until reaching the speed limit?

$v_i = 15\text{ m/s}$ $x_i = 130\text{ m}$

$v_f = 40\text{ m/s}$ $a = 1.2\text{ m/s}^2$

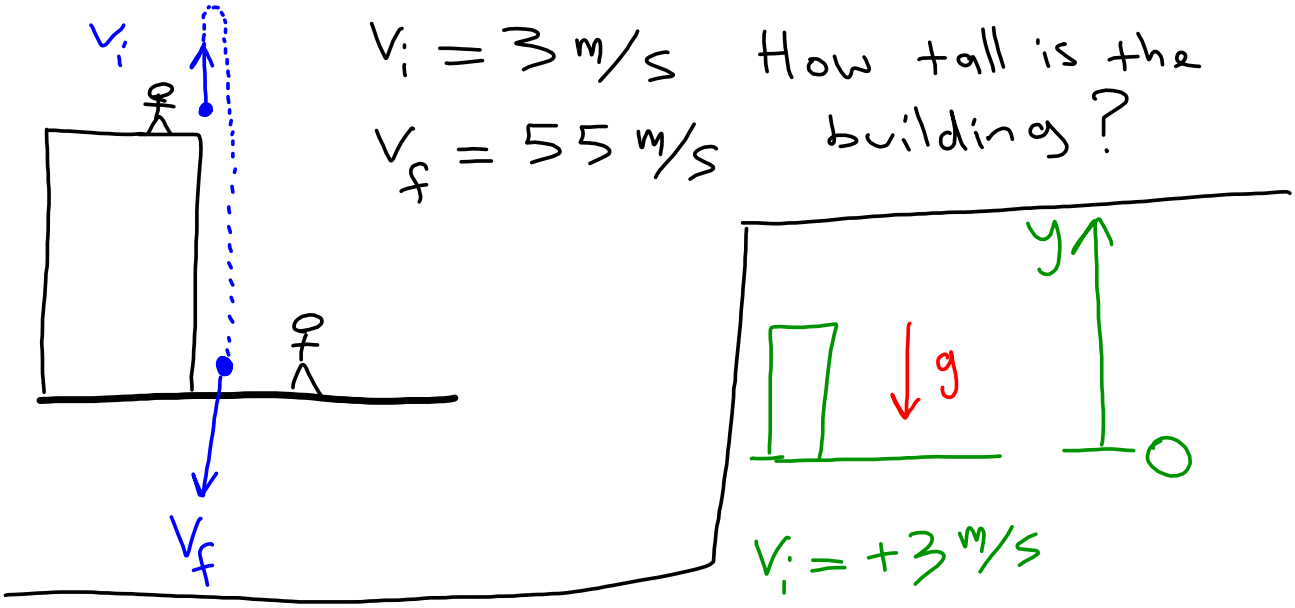
$t = ?$

~~$x_f = ?$~~ don't care

$$v_f = v_i + at$$

$$t = \frac{v_f - v_i}{a} = \frac{40-15}{1.2} =$$

$\boxed{20.8\text{ s}}$



$V_i = 3\ m/s$

$V_f = 55\ m/s$

How tall is the building?

$V_i = +3\ m/s$

$V_f = -55\ m/s$

$a = -9.8\ m/s^2$

$y_i = ?$

$y_f = 0\ m$

~~$t = ?$~~

$$V_f^2 = V_i^2 + 2a(y_f - y_i)$$

$$(-55)^2 = (3)^2 + 2(-9.8)(0 - y_i)$$

$$\boxed{y_i = 153.88\ m}$$